Title: Low Threading Dislocation Density Relaxed Mismatched Epilayers without High Temperature Growth
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Serial No. 09/761,497
EXPRESS MAIL LABEL NO. EV173088315US
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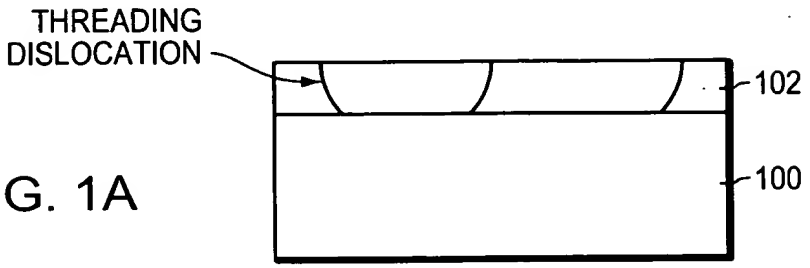

FIG. 1A

1. DEPOSIT LATTICE MISMATCHED LAYER AT LOW T

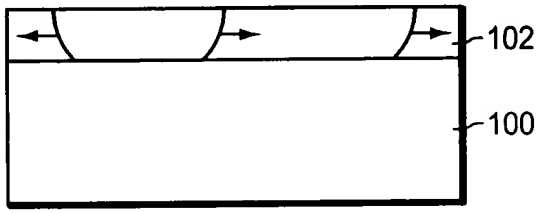

FIG. 1B

2. ANNEAL AT HIGH T TO INCREASE DISLOCATION FLOW AND REDUCE DISLOCATION DENSITY

4. REPEAT ANNEAL AND DEPOSITION UNTIL DESIRED STRUCTURE IS ACHIEVED

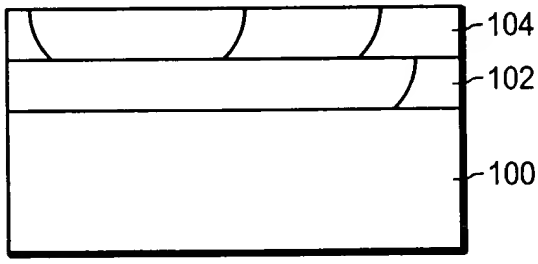

FIG. 1C

3. DEPOSIT SUBSEQUENT LAYER WITH INCREASED LATTICE MISMATCHED AT LOW T

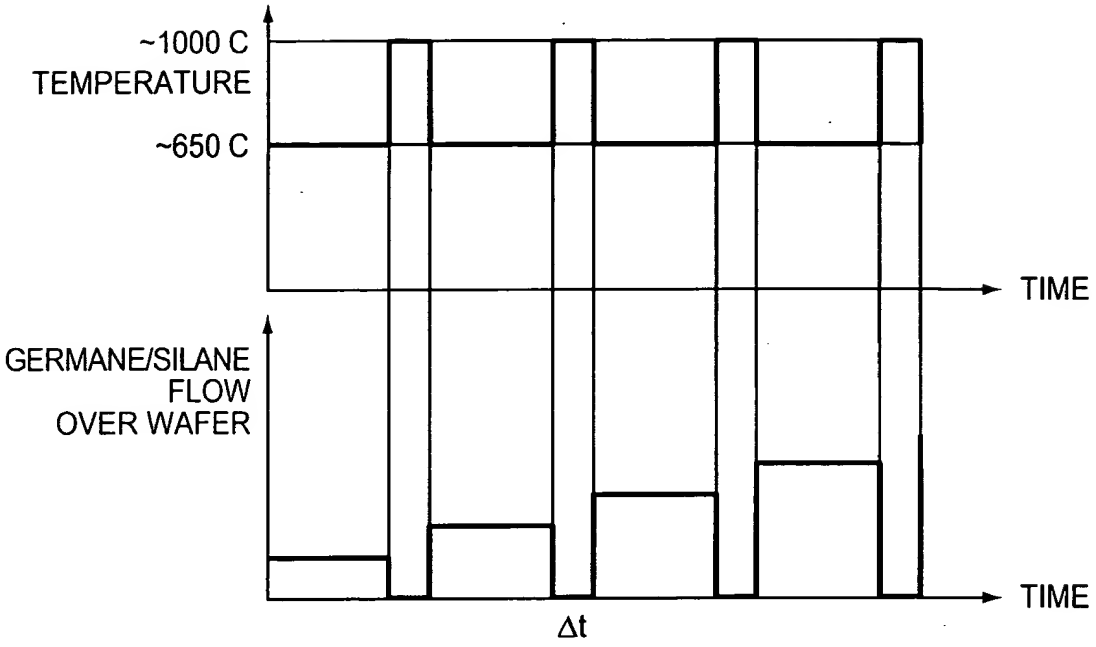

FIG. 2

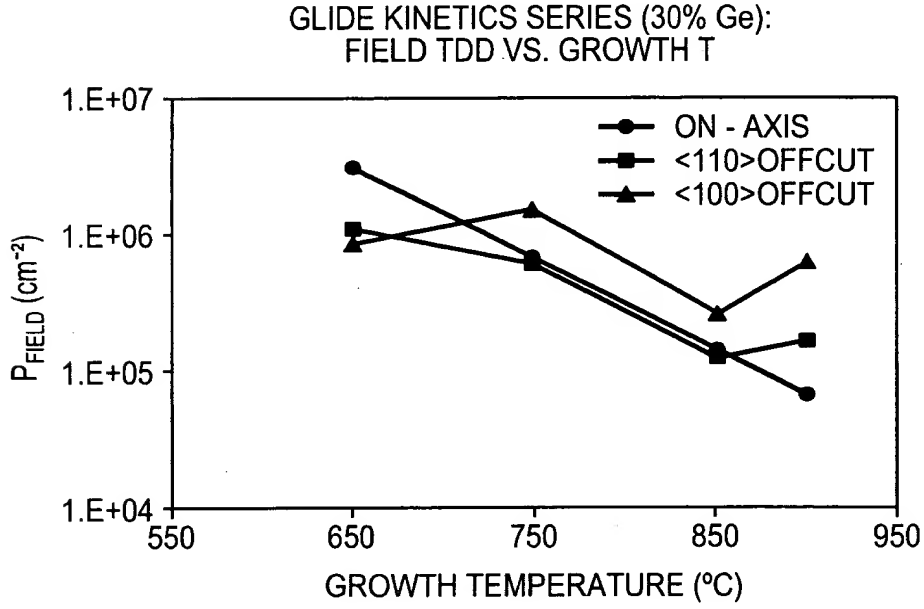

FIG. 3

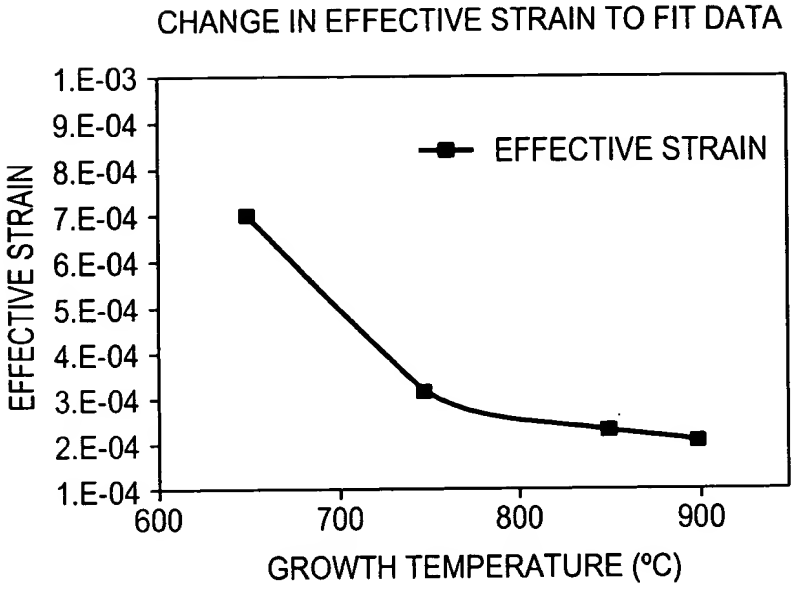

FIG. 4

SAMPLE	TOTAL THREADING DISLOCATION DENSITY (# / cm²)	FIELD THREADING DISLOCATION DENSITY (# / cm²)
20% SiGe ON Si WITH GRADED BUFFER AS GROWN	1.36×10^6	1.31×10^6
20% SiGe ON Si WITH GRADED BUFFER AFTER A 5 MIN ANNEAL AT 1050 °C	7.25×10^5	5.48×10^5

FIG. 5